

FINAL STAGE: Assembly (*kumitate*) and conclusion

CONCLUSION and ASSEMBLY (*kumitate*)

This is the conclusion of the website on traditional Japanese craftsmanship. Since we are concentrating on the making of a *butsudan*, especially a Hikone *butsudan*, we finally wish to describe how it is assembled after all the parts have been completed.

KUMITATE:

Having discussed the seven skills that go into making a *butsudan*, it remains to explain how the whole *butsudan* is put together. This assembly process (*kumitate*) has already been touched on at the end of each section. However we feel it might be of some interest if we bring it together step by step with a (mostly) pictorial summary of the stages. Even many Japanese people do not how their family *butsudan* is constructed.

Usually a *butsudan* is being assembled to meet a deadline for delivery to a customer or to be put on display at an exhibition. Therefore it was not easy to find a company with the patience to allow us to watch and photograph the process and ask questions. In the ensuing photos we follow the assembly of the outside parts on one *butsudan* and then inside parts on another. Because *butsudan* come in so many different styles, using so many different techniques to make the components, we have had to generalise in this section to make it as interesting and useful to the reader as possible.

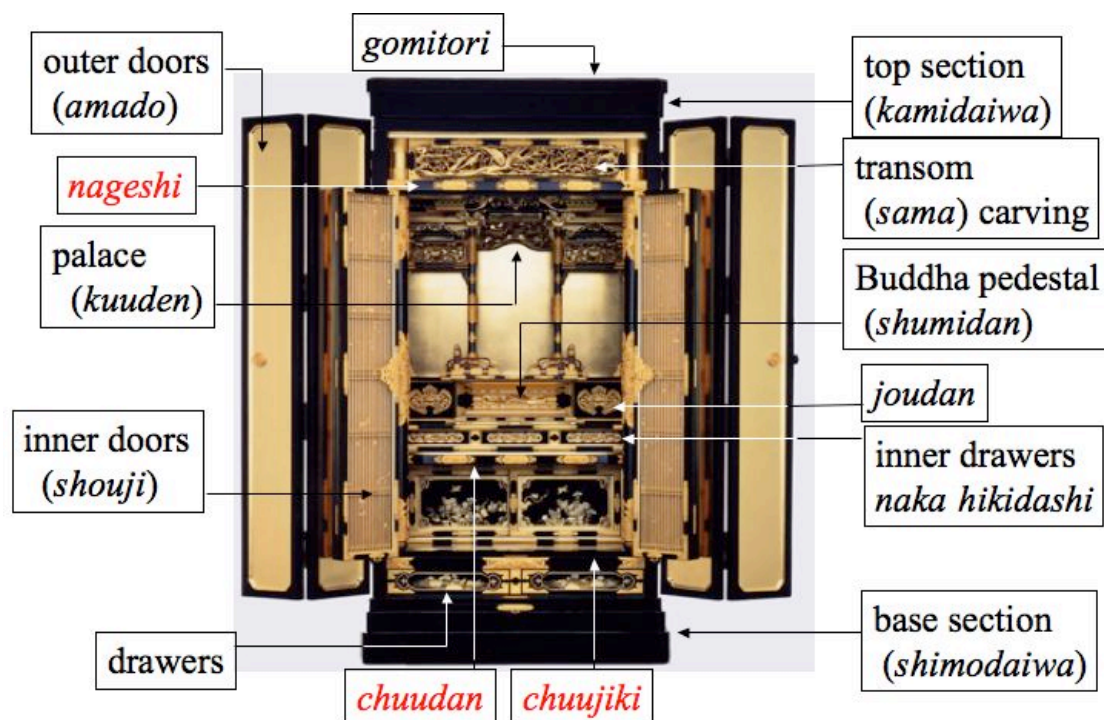
As we have been using *butsudan* manufacture as an example of traditional craftsmanship, we have restricted our description to traditionally made items (*dentou teki kougei hin* – DKH). The *butsudan* described below generally fall into that category. In order for a *butsudan* to be designated DKH, five of the seven artisans (Sections 1-7) must be trained in those special techniques and be recognized as *dentou kougei shi* (DKS).

However the Ministry of Economy, Trade and Industry (METI), has not established a DKS qualification at the national level for *butsudan* assembly, unlike the other crafts involved. In order to redress this situation and give the *kumitate* artisans their due, the Hikone *Butsudan* Manufacturers' Cooperative Association (Hikone *butsudan jigyou kyoudou kumiai* or *kumiai*) has established a certification called *kumiai nintei ginou shi*. Only people with this qualification can assemble DKH items.

After lacquering and gilding, all the components parts, including the *kiji*, the *kuuden*, the carvings, the *makie* and the decorative metal pieces, are collected together in the workshop of the *butsudan* dealer. Generally Hikone DKH *butsudan* are assembled using tenons, pegs and mortises so they can easily be taken apart for cleaning and repair (*sentaku*). Hikone *butsudan* are assembled upright unlike some other types that are laid down. Although there is no hard and fast rule about the order of assembly, in general *butsudan* are put together working from bottom to top and from outside in. In other words, the outside walls, the three inner shelves (*sandan* = *chuujiiki*, *chuudan* and *nageshi*) and the central pedestal (*shumidan*) are generally assembled in that order, working up. But once the artisan begins to work on the inside pieces, he chooses the quickest most cost-effective way for him, which will vary between artisans.

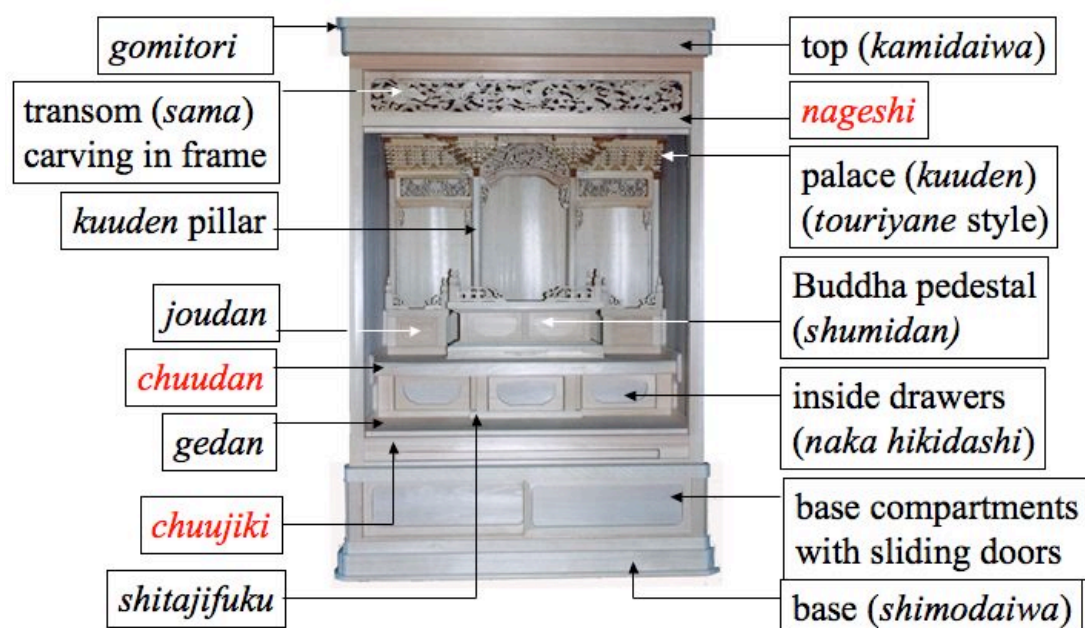
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Following the usual pattern of assembly, we will start our description with the carcass (*kiji*) – the base (*shimodaiwa*), the sides (*gawaita*) and the back (*mukouita*). In Section 1 of this website, where we have detailed woodworking techniques for *kiji* making, showing the different parts made by the artisan (*kijishi*), we have also shown the construction at the plain wood stage where it is especially easy to follow. Perhaps a glance back at that before continuing would help with understanding what follows. Also, as a reminder of *butsudan* structure, we have included again here a picture in which the main parts we are going to discuss in this section are labelled. *Kumi* photo 01.a is a fully assembled Joudoshinshuu style *butsudan* ready for sale.



Kumi photo 01.a: structure of basic *butsudan*
(courtesy Eirakuya Co Ltd)

However, because the *butsudan* we describe below is Joudoshuu in style (and thus a little different from that shown in photo 01.a - for differences please look at the introduction to Section 1: *Kiji* – structure and style) we have included an illustration of the bare carcass of the Joudoshuu style to help with comprehension.



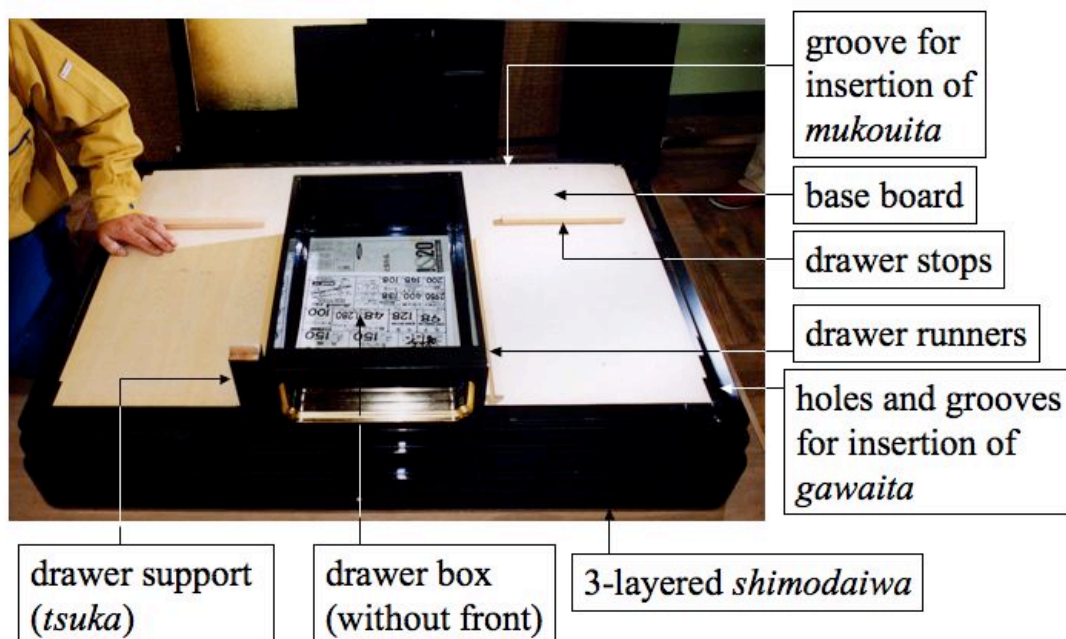
Kumi photo 01.b: Joudoshuu style kiji [basic frame without doors] (cf *kiji* photo 24 for Joudoshinshuu style) (courtesy Tsuji Ryoza)

Then, let us begin with the base (*shimodaiwa*). Structurally the corners of the *shimodaiwa* matched by those of the upper *kamidaiwa* are either squared or rounded (see Section 1). Square corners used to be most widespread because they were the easiest to make. However now rounded corners are common and they no longer indicate specially high quality. “In the past squared corners were for ordinary items and rounded for high quality DKH items because making rounded was more difficult. These days other *butsudan* producing areas are making rounded corners even for ordinary items, so we have to too,” explains one *kumitate* artisan indicating the increasing amount of competition not only between but also within METI designated *butsudan* Production Areas (see Introduction).

The number of layers depends on several factors, such as the style depending on the religious sect of the customer. For example a Joudoshuu *butsudan* tends to be 2-layered, while a Joudoshinshuu *butsudan* is 3-layered. The size of the alcove (*butsuma*) in the house where the *butsudan* will be placed is also important. The Joudoshinshuu *shimodaiwa* will have three layers if the *butsuma* is a regular height, or four if the *butsuma* is higher than usual. If a larger than average statue is to be set in the *kuuden*, the pillars will be taller and the *shimodaiwa* can be reduced to two layers without changing the overall height of the *butsudan*.

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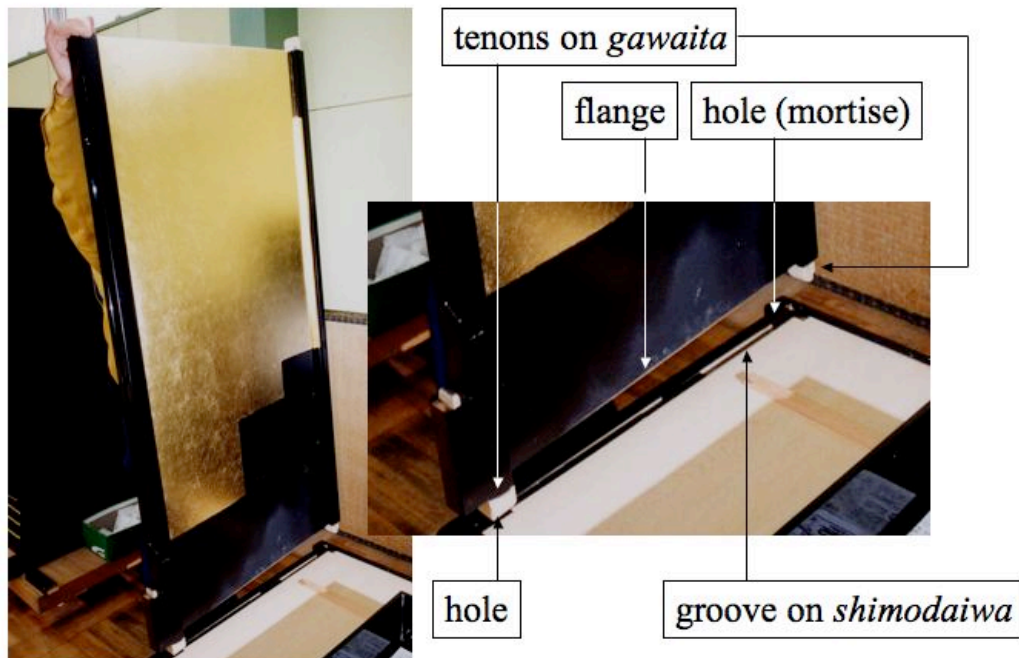
In any case, except in a few instances of very high quality DKH *butsudan*, the two or three layers are joined and then lacquered as a single unit. A board, with drawer runners and stops is placed into the top of the *shimodaiwa*.



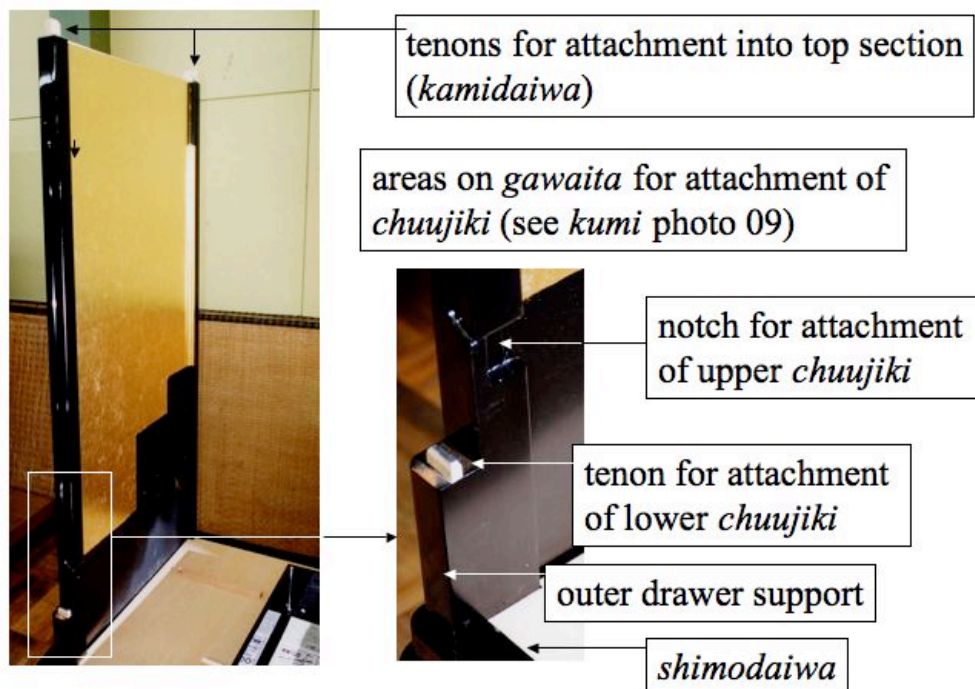
Kumi photo 02: 3-layered base (*shimodaiwa*) with board inserted (wheels inserted underneath)

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Next the sideboards (*gawaita*) are attached. At the right and left, front and back edges of the *shimodaiwa*, there are holes (mortises) to allow for insertion of the tenons on the *gawaita*. Additionally grooves run along the sides, between the mortises, to take the flanges of the *gawaita*.



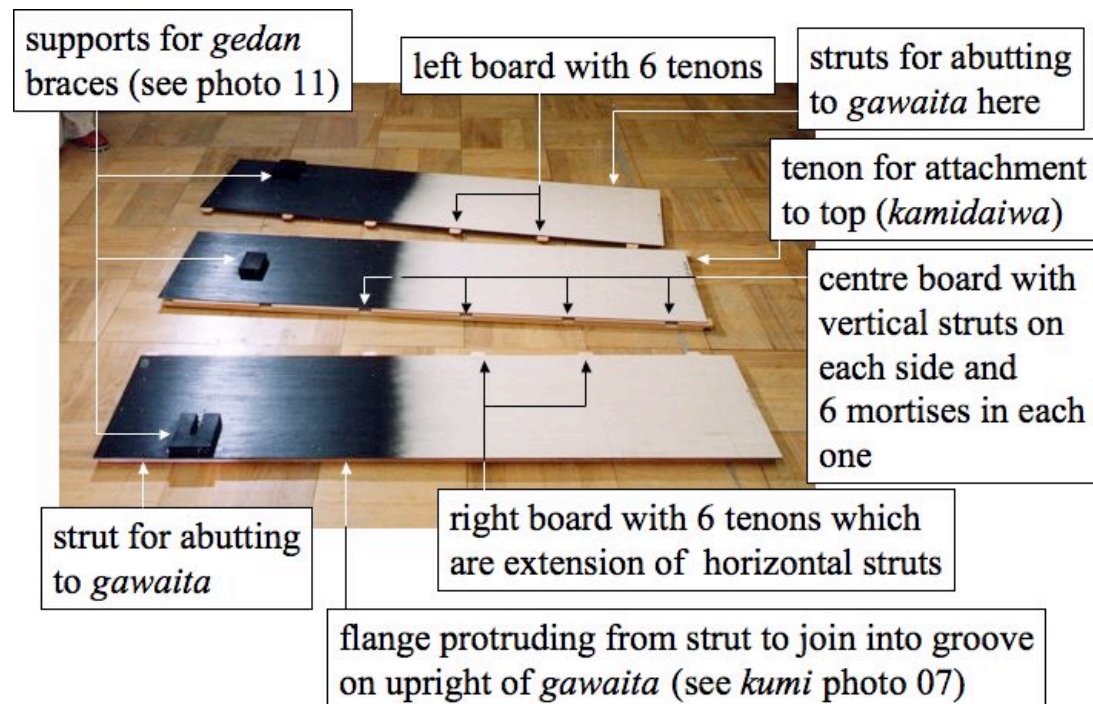
Kumi photo 03: inserting side boards (*gawaita*)



Kumi photo 04: *gawaita* in situ

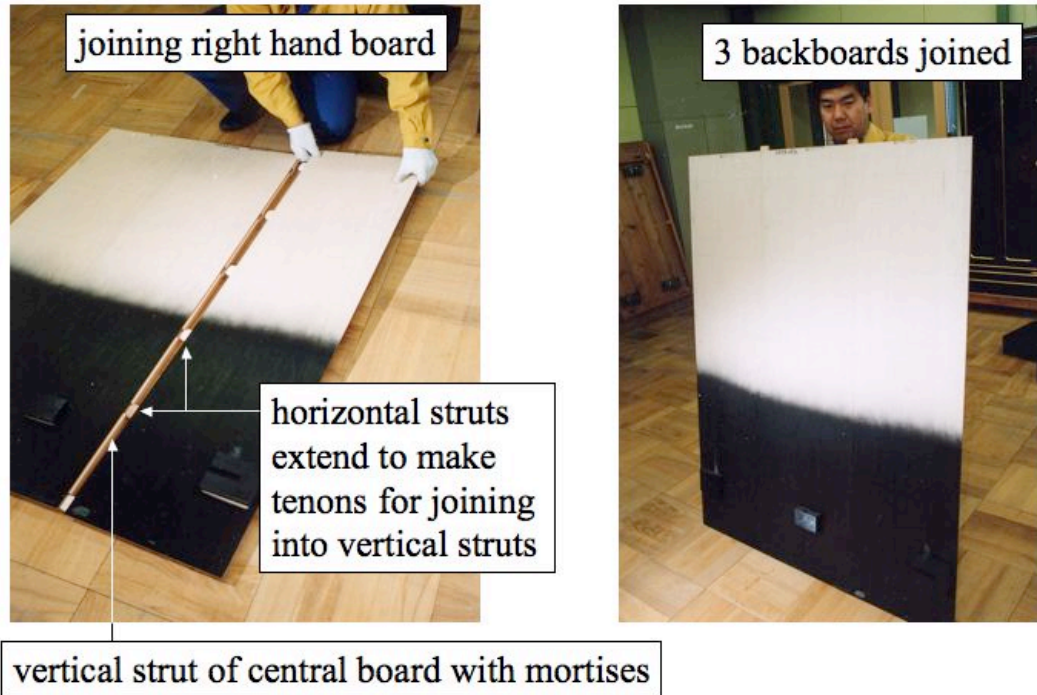
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As already mentioned in Section 1, the back is made of three boards assembled into one. The pieces of backboard (*mukouita*) are treated individually before joining. As in the present case, they may be lacquered at the bottom and left as bare wood at the top, and another lacquered and gilded half (secondary) *mukouita* will then be placed in front (see *Kumi* photo 21). For a high quality DKH *butsudan*, the pieces will be lacquered and gilded as discussed in Sections 4 (*nurishi*) and 6 (gilders). In any case the structure of the boards and the joining techniques are the same.



Kumi photo 05: three separate backboards:

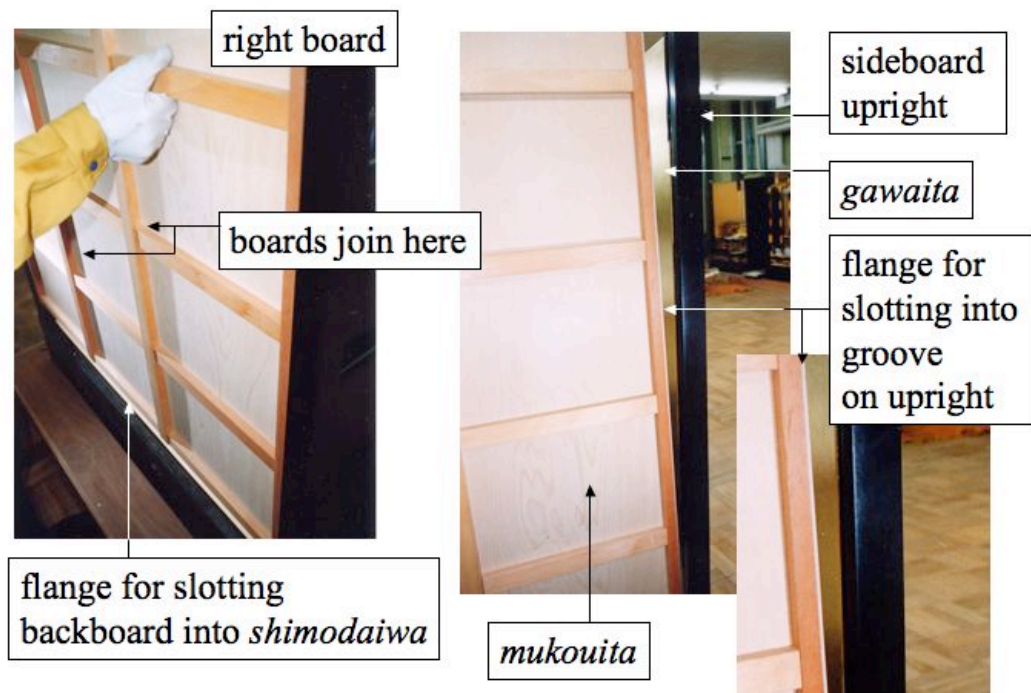
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Kumi photo 06: backboards (*mukouita*) joined

When the boards are joined into a single *mukouita*, this is slotted into place on the *shimodaiwa*. The four vertical struts extend downwards to make tenons, which fit into holes in the base, while an extension of the board itself slots into a groove. [And upwards at the top of the *mukouita* for attachment to the top (*kamidaiwa*) to be discussed later. Also side flanges slot into the vertical struts (uprights) on the *gawaita*.

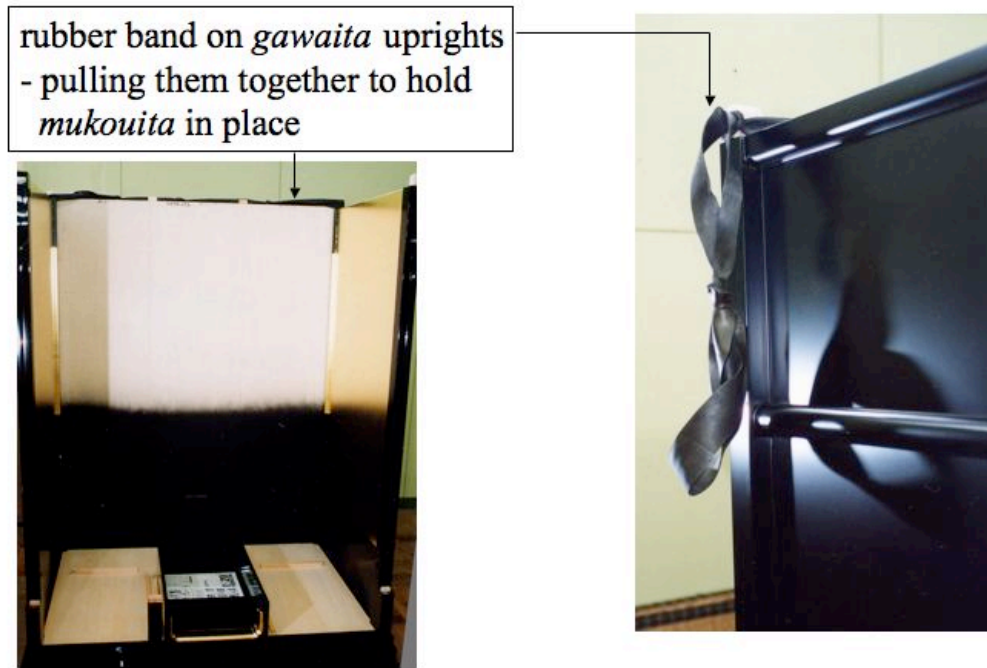
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Kumi photo 07: slotting backboard into place

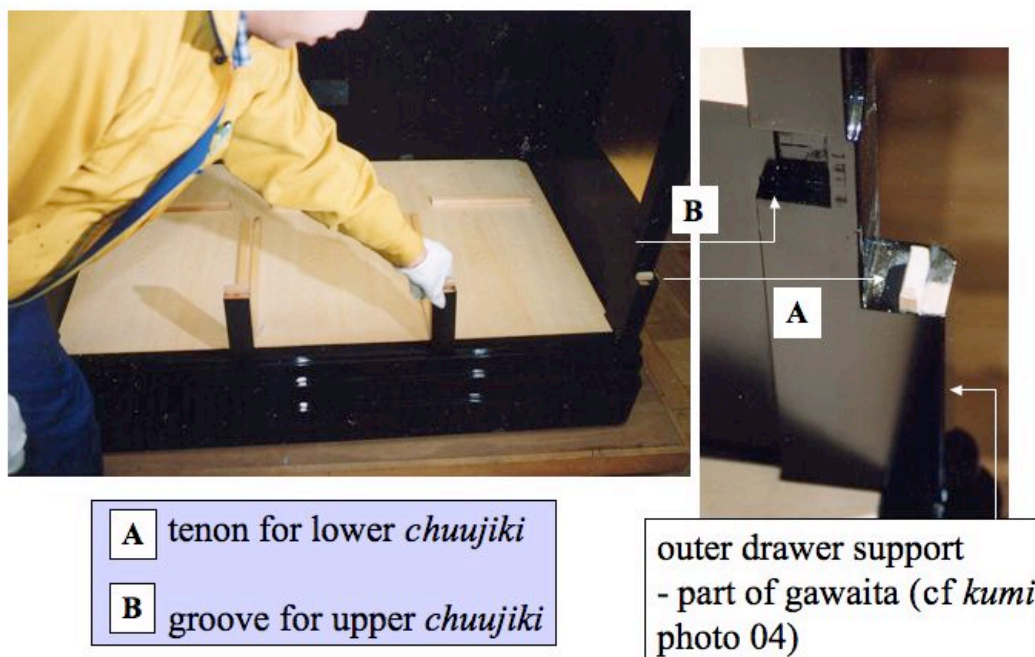
Heavy rubber bands on the *gawaita* uprights pull them together and hold the *mukouita* in place.

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Kumi photo 08: rubber band holding
mukouita

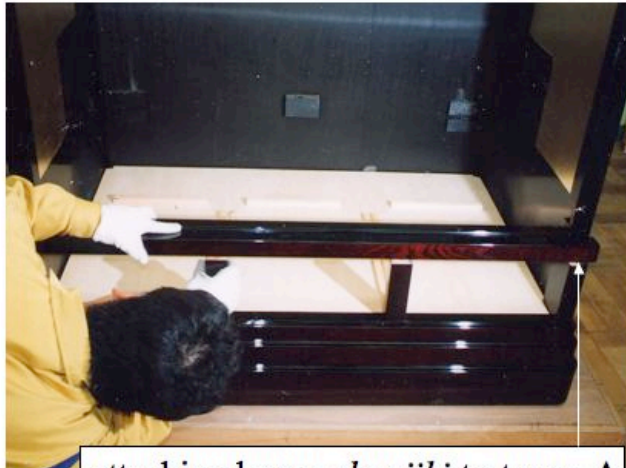
Next, tenons of the two drawer supports (*tsuka*) are placed into holes on *shimodaiwa*. The outer supports, at the right and left sides of the drawers, are part of *gawaita* (see *Kumi* photos 04).



Kumi photo 09: attaching *tsuka* to *shimodaiwa*

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Then the lower *chuuji* is attached to the tenons on top of the *tsuka*. And the upper *chuuji* is joined into the groove on the *gawaita* upright, above and slightly behind the lower *chuuji*.



attaching lower *chuuji* to tenon A
(see *kumi* photo 09) and other
tsuka tenons

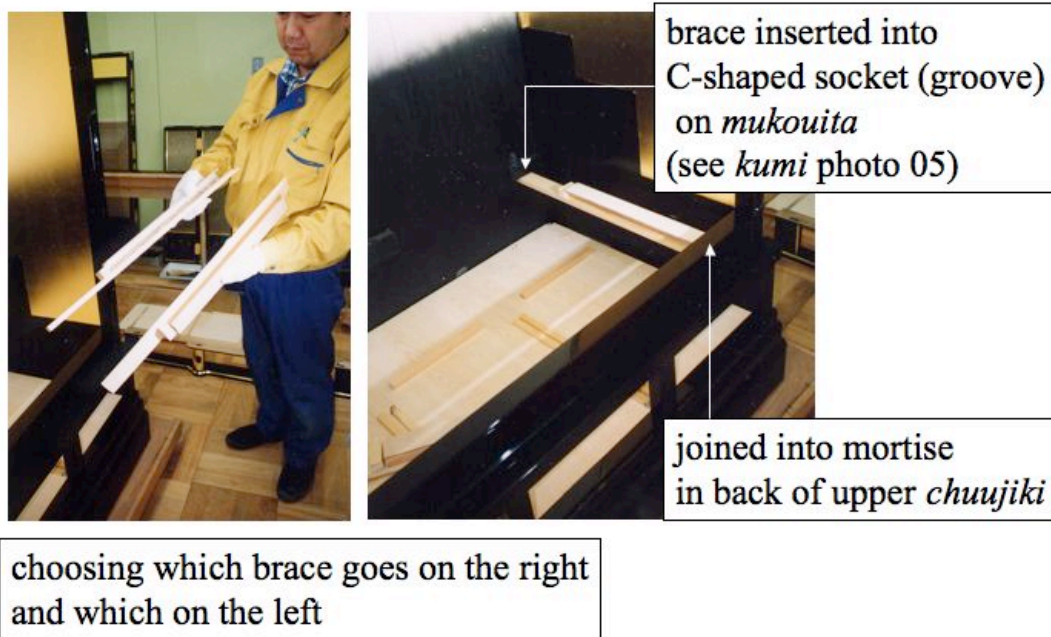


upper *chuuji* attached to groove B (see *kumi* photo 09)

Kumi photo 10: joining the upper & lower *chuuji*

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After that, the braces (*surizan*) that will support the *gedan* are attached. At the back they are slotted into a groove on the *mukouita* (see *Kumi* photo 05) and at the front into a mortise in the back of the upper *chuuji*. They have a layered construction making them specific for the right or left sides. The front part supports the *gedan*; and at the back it fits into the slots mentioned above and supports the board behind the *gedan*.



Kumi photo 11: inserting the braces for the *gedan*

The *gedan* is a solid flat board at the front with 3 battens at the back. The 3 battens rest on the 3 supports attached to the back of the *mukouita* (see *Kumi* photo 05). The *gedan* itself, rests on the 2 braces (*surizan*) at the front and drops in behind the *chuuji*. Since a large surface of the *gedan* is visible and is where some Buddhist implements are placed, it is usually treated with high quality lacquering processes.

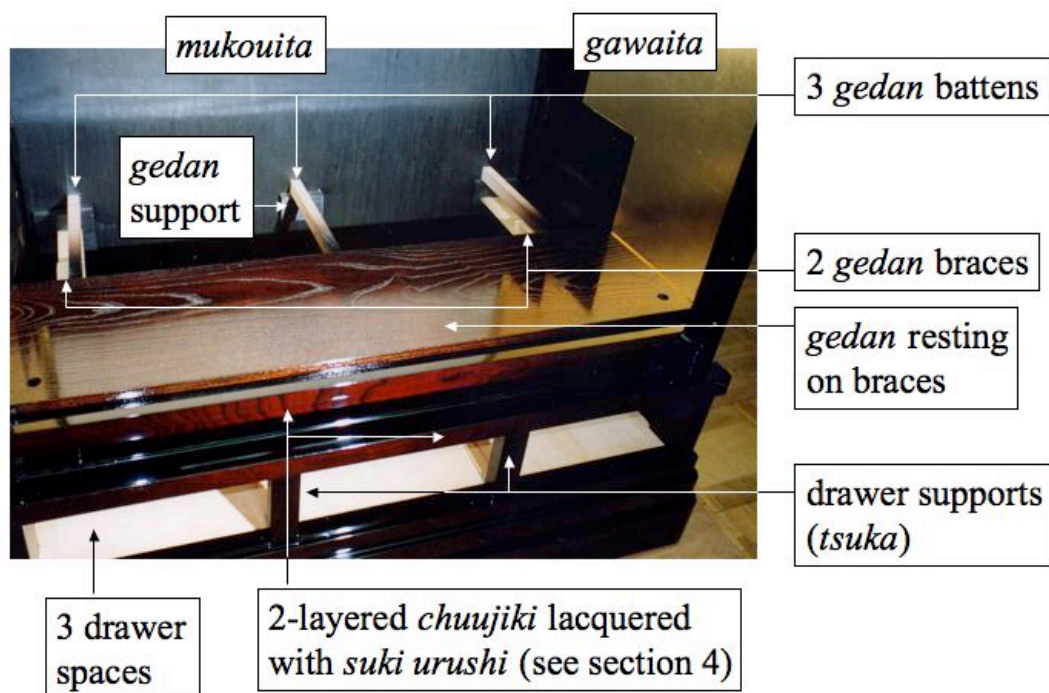
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Here the wood grain shows (*mokume dashi*) and is treated with clear lacquer (*suki urushi* – see Section 4).



grained, solid zelkova (*keyaki*) wood is used for the *gedan* because it is highly visible

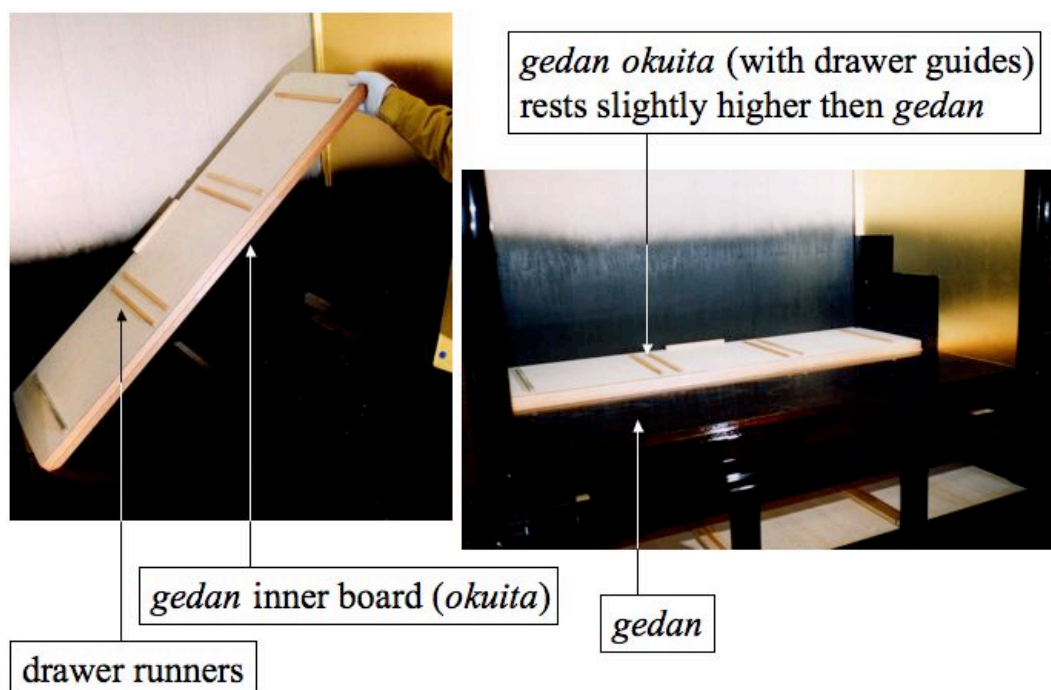
Kumi photo 12: lowering the *gedan* into place



Kumi photo 13: *gedan in situ*

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Then a bare board (*gedan okuita*), with drawer runners, rests on the 3 battens. When in place, it is slightly raised above the level of the *gedan*, because a decorative strip (*shitajifuku*) will be placed in front, to make a flat shelf.

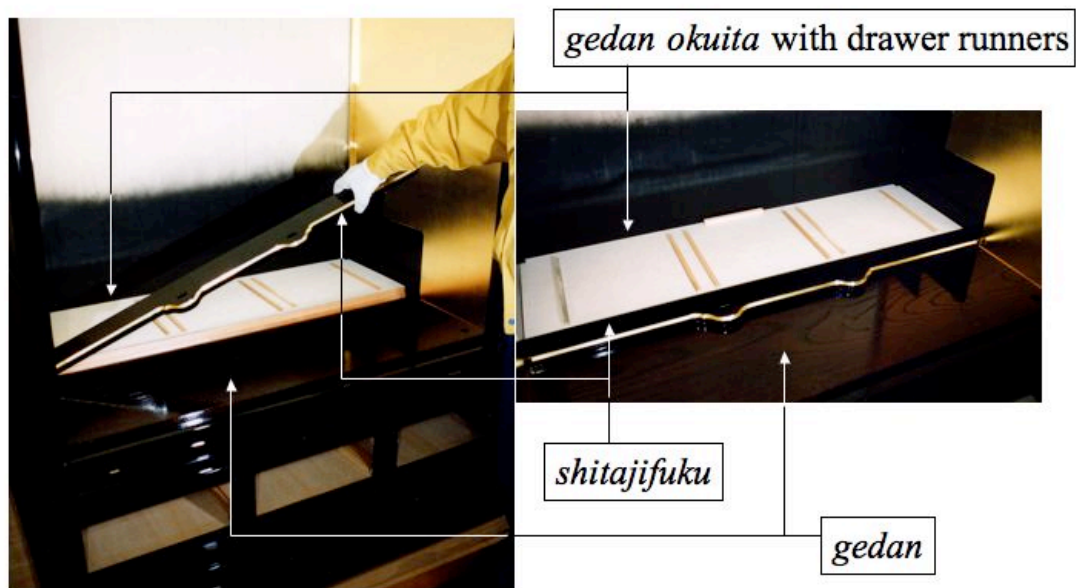


Kumi photo 14: attaching *gedan okuita*

The lower decorative strip (*shitajifuku*) is a shaped strip of board about 1.5 cm thick. It fits in front of the *okuita*, to make a level area for the drawers, and has holes to take the tenons of the drawer *tsuka*. In other words it is underneath the drawers. There are

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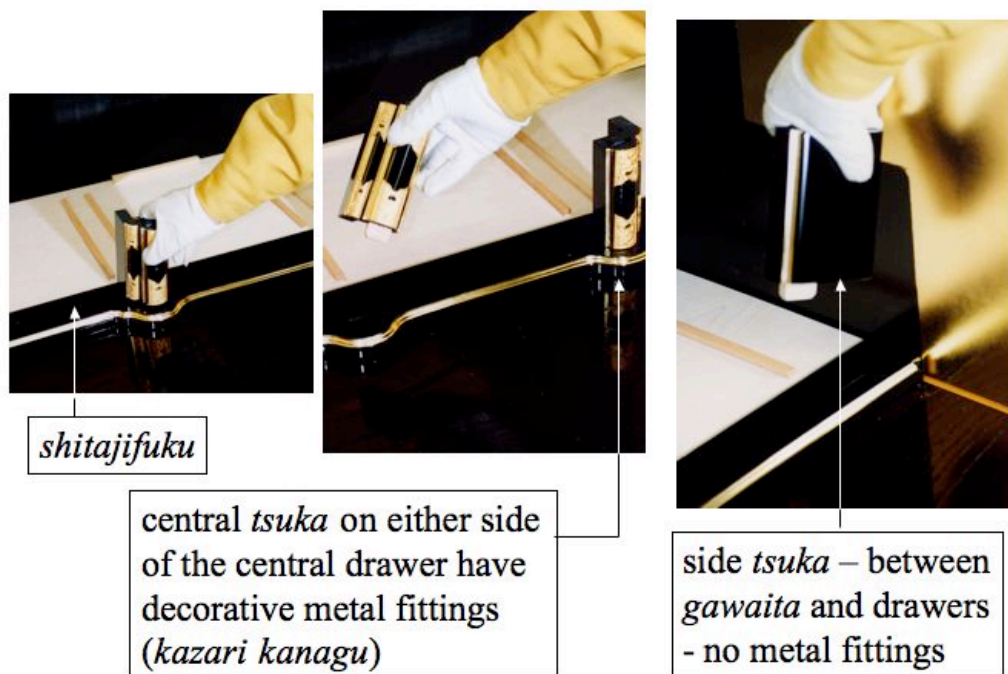
four *tsuka* - two separating the middle drawer from the side drawers and two separating the side drawers from the *gawaita* on each side.



Kumi photo 15: attaching *shitajifuku*

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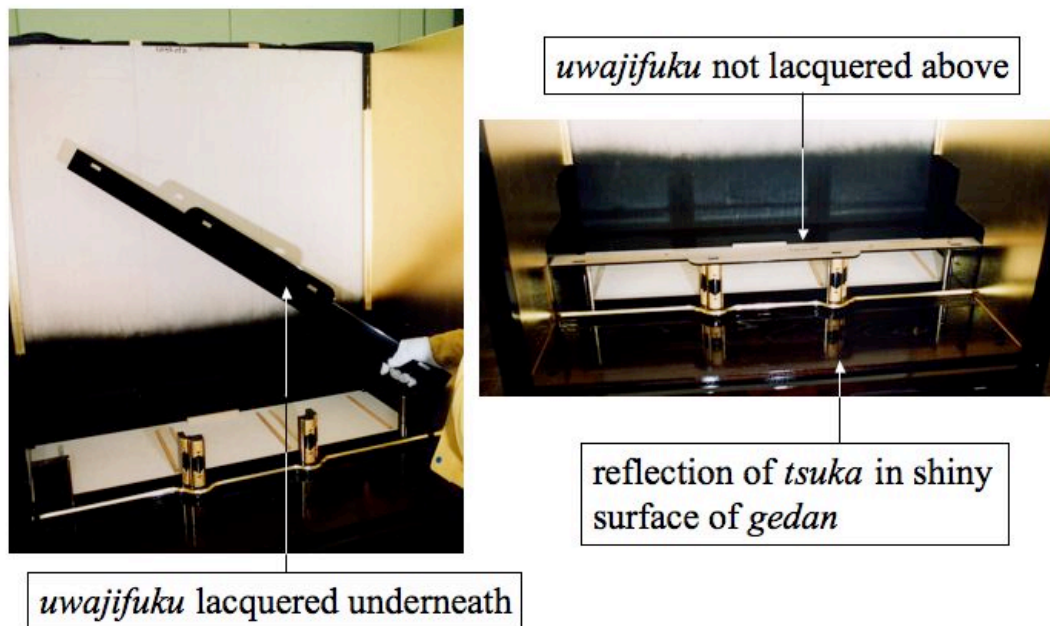
Once the *shitajifuku* is in place, the drawer supports, sometimes called *chuudan tsuka*, can be installed. It is up to the choice of the *butsudan* dealer, but usually the decorative metal fittings (see Section 7: *kazari kanagu shi*) will already have been attached. The *tsuka* between the *gawaita* and side drawers have no fittings.



Kumi photo 16: adding *tsuka* onto *shitajifuku*

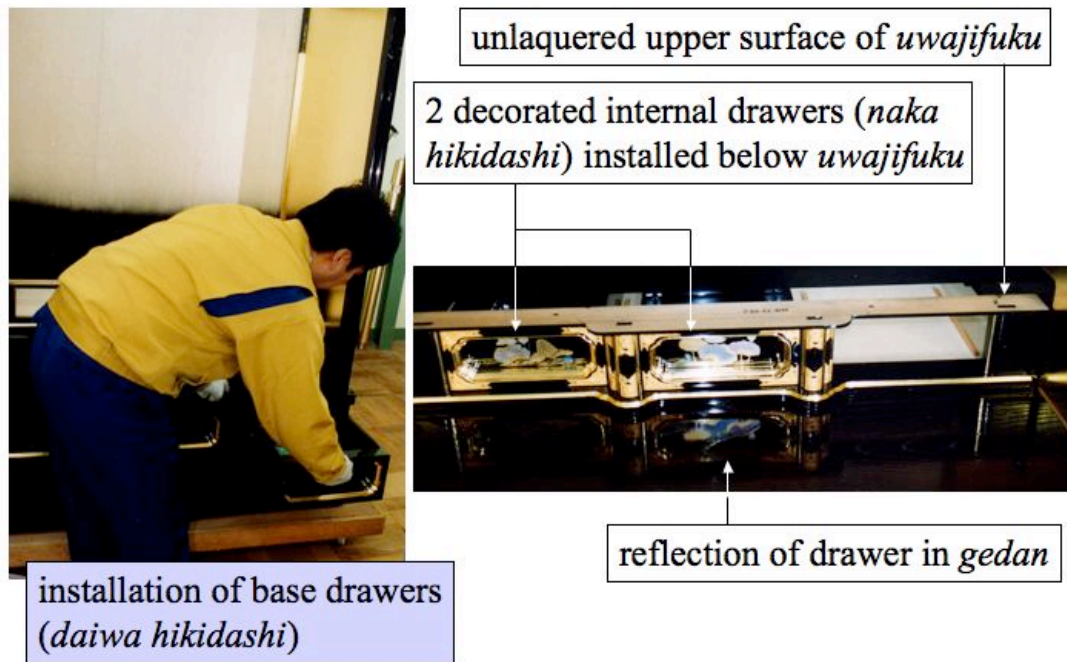
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Then an upper decorative strip (*uwajifuku*), about 0.5cm thick matching the shape of the *shitajifuku* can be slotted onto the *tsuka* tenons. There are holes in it, which go right through, for the tenons of the drawer *tsuka*. Pressing it into place connects the 4 *tsuka* and holds them in place. The upper side is bare wood but the underneath is lacquered. It is above the drawers and is covered by the next shelf up (*chuudan*) which it helps support.



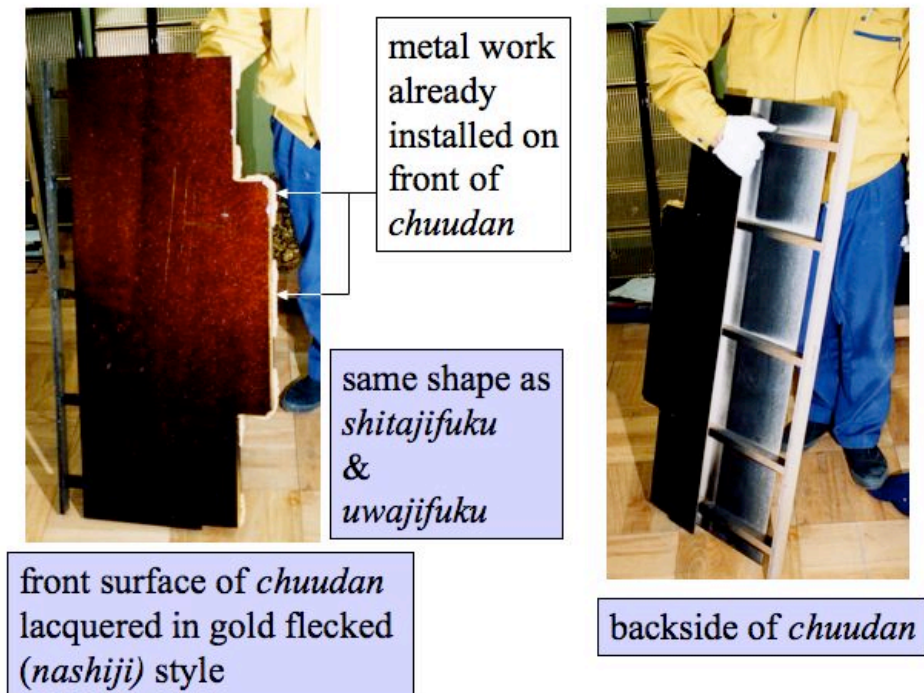
Kumi photo 17: installing *uwajifuku*

The spaces for the drawers are now complete. Three plain black drawers (*daiwa hikidashi*) without *makie* decoration go into the *shimodaiwa*. [In Kumi photo 01.b they are compartments with sliding doors instead of drawers.] Highly decorated drawers (*naka hikidashi*) with *makie* pictures and surrounding metal (see Kan photo 22) are placed below the *uwajifuku*.

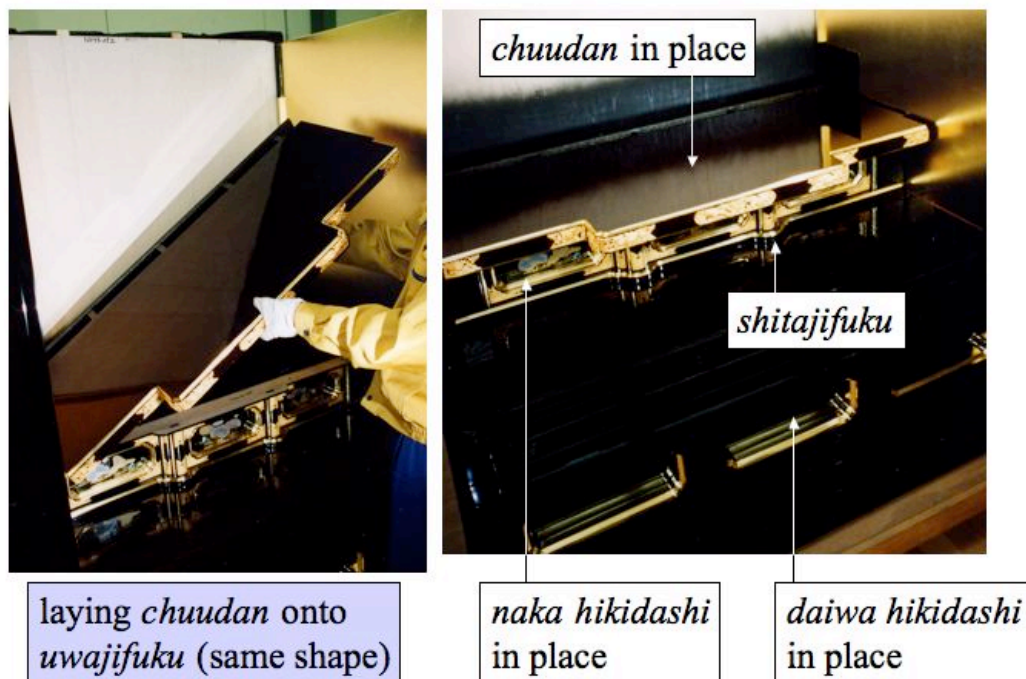


Kumi photo 18: showing installation of drawers

Next the *chuudan*, which goes above the drawers and below the *shumidan*, is put in place. This is usually a board and batten construction rather than solid wood. The 2 pieces: wood on top and veneered plywood underneath, are joined with battens. The thickness of the veneer is determined by the customer's budget, and if desired, it could all be made of solid wood. The underneath layer of plywood rests on the *uwajifuku*. The batten at the back of the *chuudan* fits into slots on the *gawaita*. In Kumi photo 19, the *chuudan* has been sprinkled with coarse gold powder and then treated with clear lacquer. Called *nashiji* lacquering, this results in a sparkly surface.



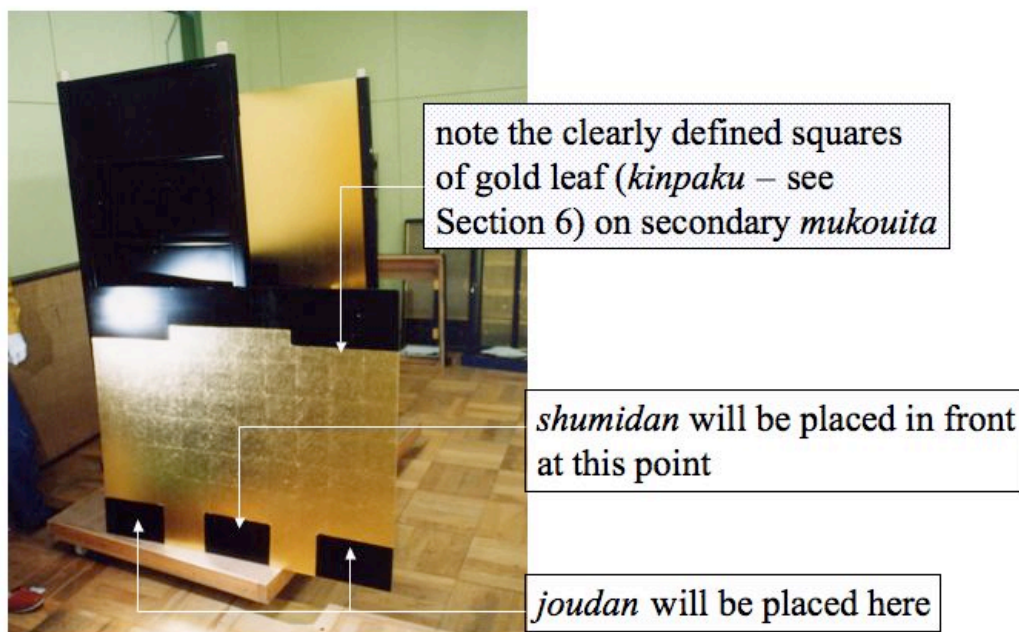
Kumi photo 19: structure of *chuudan*



Kumi photo 20: *chuudan in situ*

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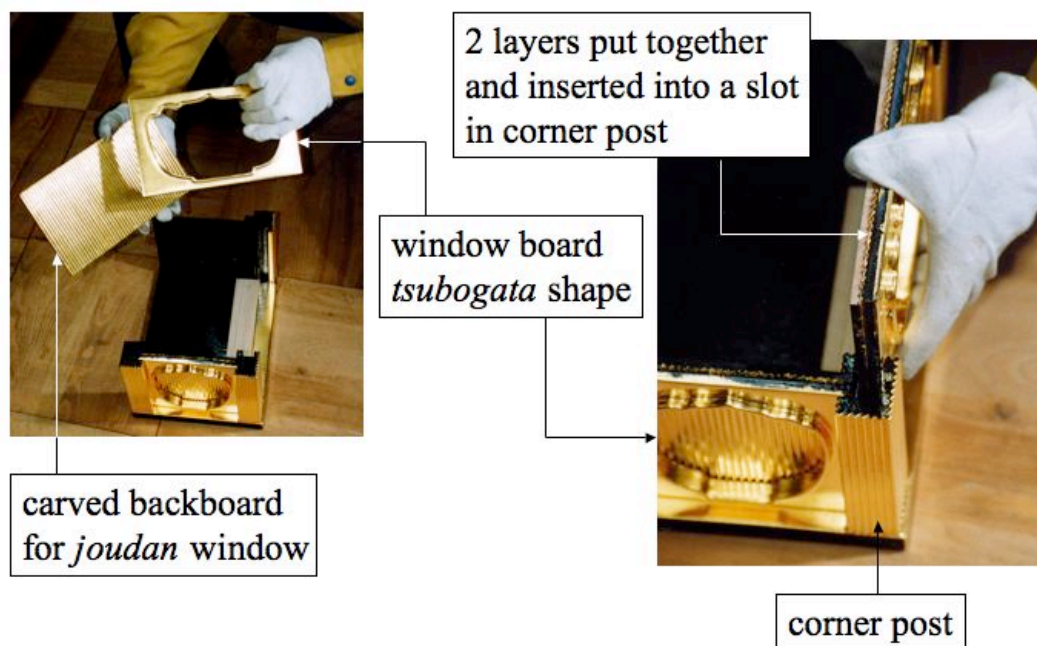
Although not shown here, once the *chuudan* is in place the half *mukouita* mentioned above will rest on it and the pedestal (*shumidan*) and side boxes (*joudan*) can be put in place.



Kumi photo 21: secondary *mukouita*

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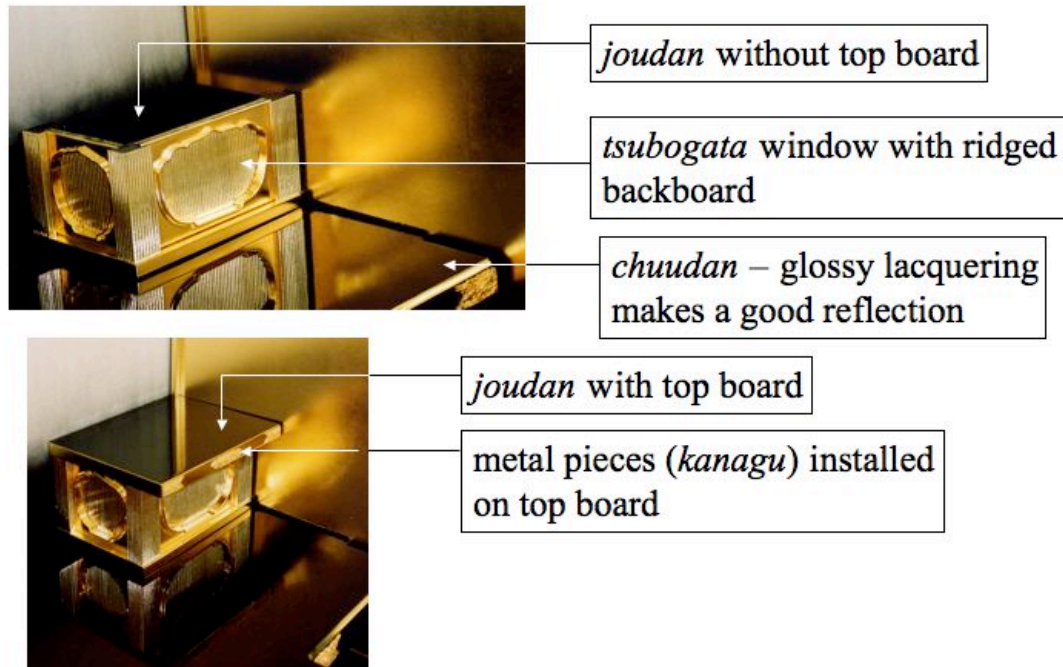
Next the *joudan* is put together. It consists of a two-sided box with a corner post and two double surfaces each with a window in it. In high quality *butsudan*, the window is likely to have a complex shape (see Section 3 *choukoku* fig. 07) and behind this there is a second board carved by the *choukoku shi* (see *choukoku* photos 10 & 11). In this case, the window pattern is called *tsubogata* and there is a simple ridged pattern behind the window.



Kumi photo 22: construction of *joudan*

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The two *joudan* sit in the right and left corners of the *chuudan* with one surface facing forwards and the other facing sideways towards the *shumidan*. A board is put on top and when in use some Buddhist icons can be placed there. The top board has pieces of decorative metalwork (*kanagu*) added before installation.



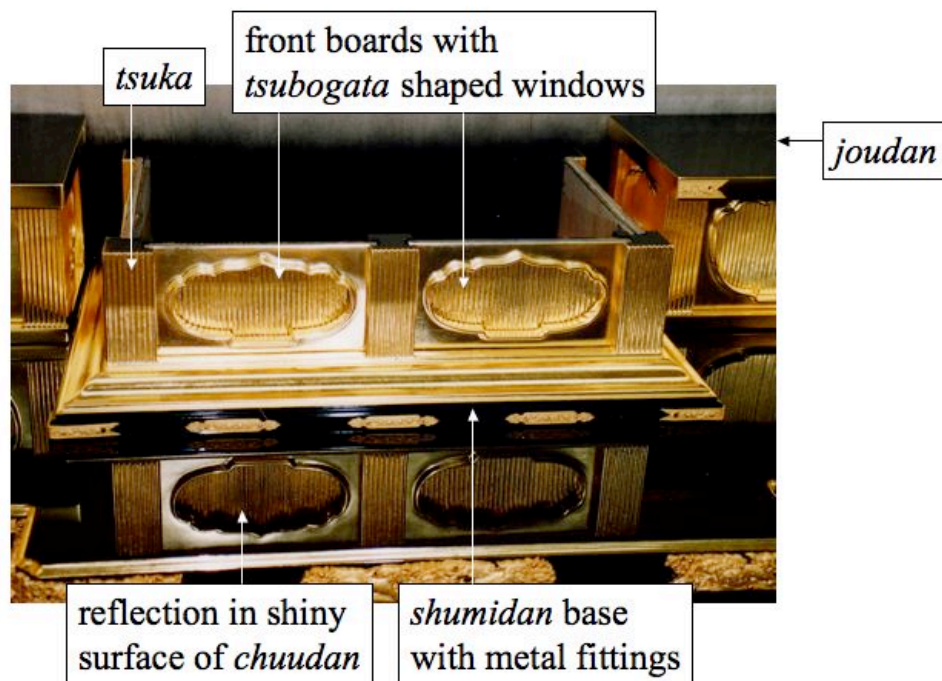
Kumi photo 23: *joudan in situ*

It is interesting to note that everything we have talked about to this point, except the window boards of the *joudan* (and *shumidan*), are made by the cabinet-maker (*kijishi*). As already stated, the window boards both for both the *joudan* and *shumidan* are made by the carver (*choukokushi*).

Now let us look at the *shumidan*. The square style, as seen here, is special for Joudoshu, while the waisted type (see Section 3: *choukoku* figs. 3 & 4) is typical of Joudoshinshuu. We can see from the construction that two front boards and two sideboards are slotted into *tsuka*. Tenons may be used to fix the middle section to the top and bottom of the *shumidan*, or, as here, the *tsuka* may be glued to the base of the *shumidan* so that the board just sits on top. In this case, the *shumidan* is forward of the *joudan* and the board (*uwajumi*) is at a higher level than the *joudan* boards. Because the *shumidan* is where the statue of the Buddha sits, it is the focus of prayers and thus

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a very important part of the *butsudan*, so the customer may have special requirements. It is often ordered from the *kijishi* after conferring, looking at designs and considering the budget.



Kumi photo 24.a: *shumidan* structure

shumidan sits higher than *joudan* on either side



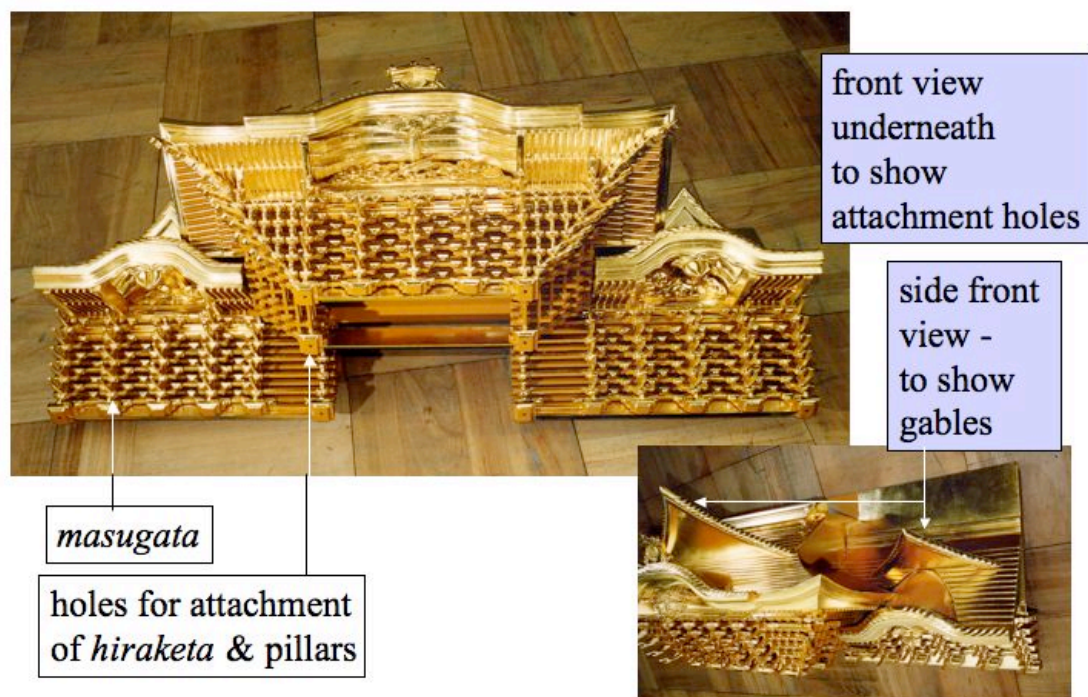
Kumi photo 24.b: *shumidan*

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Thus far, we have described those parts made by the cabinet-maker (*kijishi*) and detailed how they are put together to make a *butsudan*. The remaining parts that have to be added are the pillars, carvings, canopy (*kuuden*), inner and outer doors and finally the top. The order of construction at this stage depends on the preference of the artisan as well as the final position of the parts. Generally inside parts are attached before the outer ones.

Small pillars that hide the joins in the backboards as well as any carvings fixed to the back and side walls are added next. As we have seen in the section on *kuuden* (section 2), there are two types of *kuuden*: one which can be removed (the more expensive *douzukuri* style); and one which is fixed permanently into the *butsudan* (the cheaper *touriyane* style). A *douzukuri kuuden* will be assembled outside the *butsudan* and put in at a later stage. For assembly of those parts please look at section 2. However if the *kuuden* is to be fixed, it must be put in place before the large front pillars, the *nageshi*, the doors and the top.

The *butsudan* being described here has a permanent *kuuden*. The following photo shows a typical *touriyane* style *kuuden* running the whole width of the *butsudan*.

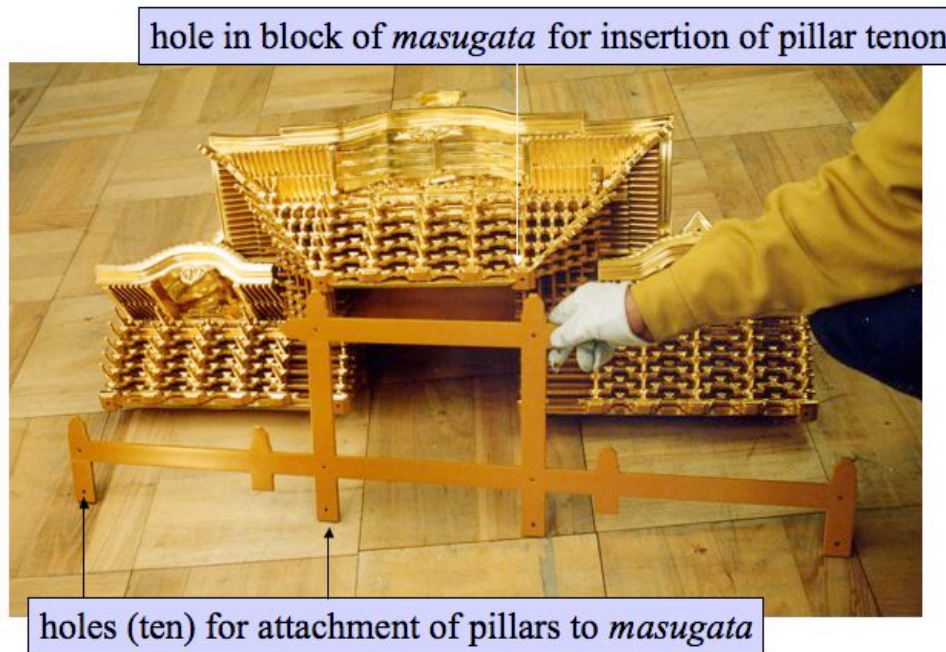


Kumi photo 25: gilded *touriyane* style *kuuden*

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It can be seen that this *kuuden* roof (*yane*) is made up of three curved gables (*karahafu*) and that, above and behind these, there are three pointed gables (*chidoriha*). For comparison please see section 2. Below the roof, the many-layered block and beam system (*masugata*) will connect to the pillars. Then the whole thing, resting on the *shumidan*, will surround and protect the statue of the Buddha.

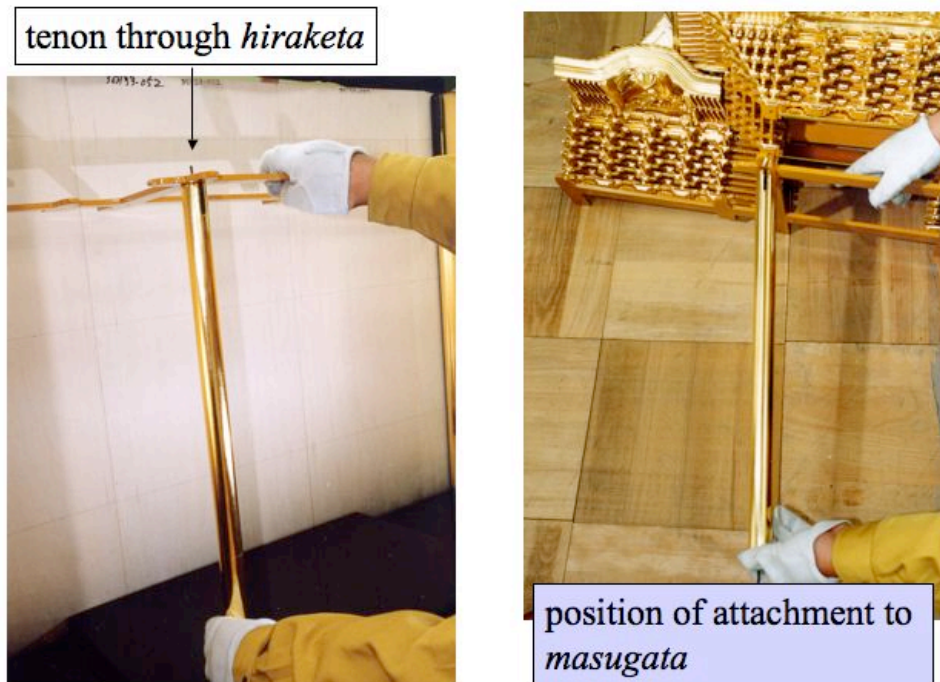
Holes (ten in this case) in the connecting flat beam (*hiraketa*), allow the pillar tenons to join the *masugata*.



Kumi photo 26: showing flat beam (*hiraketa*)

From this we can see that there will be ten small pillars holding up the roof. The next photo shows the insertion of the pillar and where they attach to the *masugata*.

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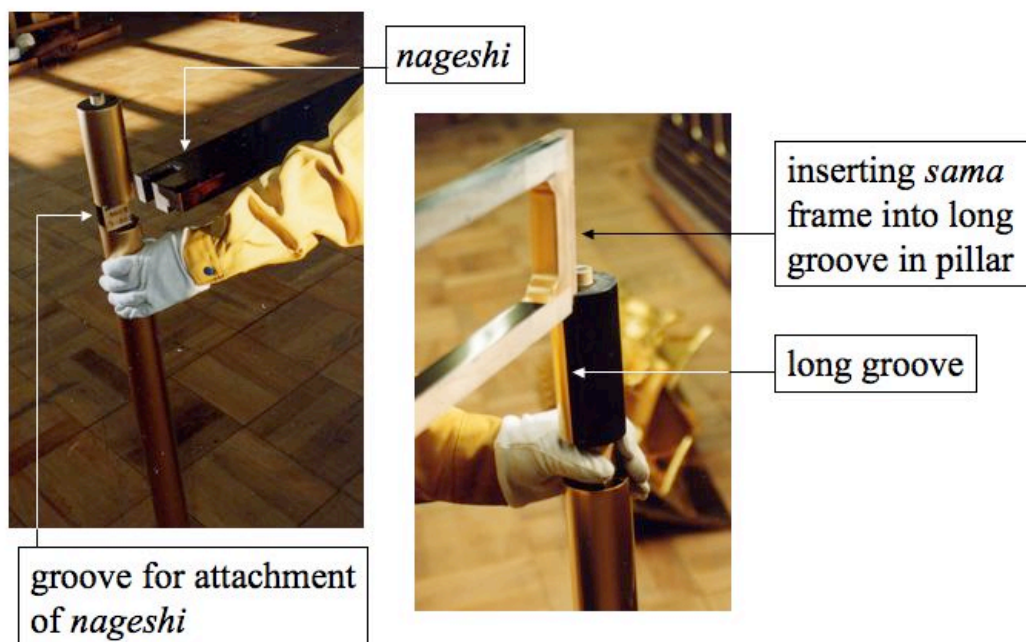
Kumi photo 27: attachment of pillars

There may be carving placed against the back and side walls of the *butsudan* (see *choukoku* section 3) and the assembly artisan has to be very careful not to damage the gilded walls when attaching these. Often it is expedient to do this from above. Although the photo shown next belongs to another *butsudan* it shows how difficult it can be to assemble the internal parts.



Kumi photo 28: attaching internal parts

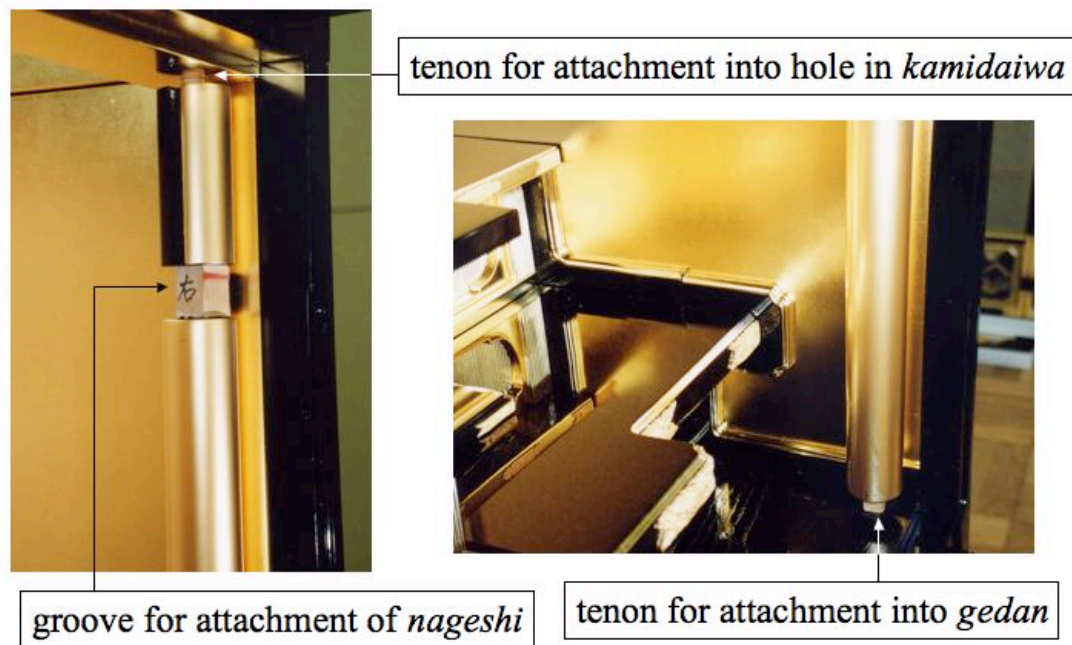
After the inside parts, are put in place the large front pillars (*oubashira*) can be added. However, first a bar (*nageshi*) running widthways across the front of the *butsudan* is slotted into a groove in the pillars. This *nageshi* is situated near the top in such a way that the *kuuden* roof and *masugata* are partially visible when standing in front of the *butsudan* and more so when kneeling. Also, there is a long vertical groove into which a frame for the transom (*sama*) carving is fitted.



Kumi photo 29: attaching bar (*nageshi*) and sama frame onto large pillars (*oubashira*)

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For attachment of the *oubashira*, there are holes in the upper part of the frame (*kiji*) for the upper tenons and holes in the *gedan* for the lower tenons (see *Kumi* photo 13).



Kumi photo 30: tenons for attachment of large pillars to frame (*kiji*)

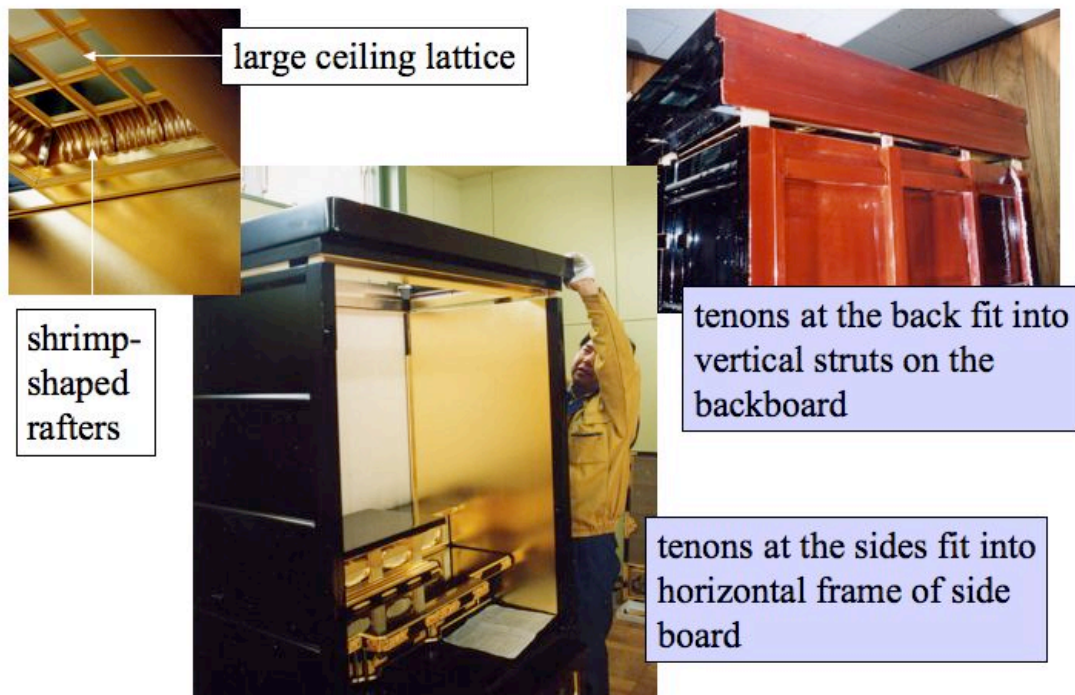
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When the pillars and *sama* frame are assembled, the carved *sama* itself will be inserted. Sometimes the carving has to be adjusted to fit. As mentioned previously, the *sama* is made by the carver (*choukokushi* – section 3) while the frame (*samabuchi*) is made by the cabinet maker (*kijishi*). It often happens that they have not met and compared measurements, so the carving may have to be trimmed a little.



Kumi photo 31: trimming and attaching transom carving (*sama*)

Next, let us look at the ceiling and top part of the cabinet. As a reminder, the ceiling is made of 2 overlapping lattices: the small upper one and the larger lower one (see section 1 (cabinet maker) photo 22 & section 4 lacquerer fig. 26). Finally, the ceiling board is put on top of this. Then the top (*kamidaiwa*) is laid on so that the tenons fit down into the sockets in the struts on the side and back boards and the pillar tenons fit upwards into holes on the *kamidaiwa*.



Kumi photo 32: assembling top of *butsudan*

This leaves only the doors to be hung. First the inner lattice doors (*shouji*), with the gilded metal work already installed (Section 7: *kazari kanagu*), are put together by fitting the lattice with its gold woven mesh into the frame. Then pegs on the frames are put into holes in the *nageshi* and *chuujiki* (see *kiji* photo 24). Sometimes the *shouji* may have the added attraction of lacquer pictures (*makie*) at the bottom of the doors (see Section 5: *makie*). These pictures often need trimming to fit into their frames. This, and their final installation are done after the doors have been hung to reduce the chance of damage during fitting.



shouji lattice with mesh
before installation into frame

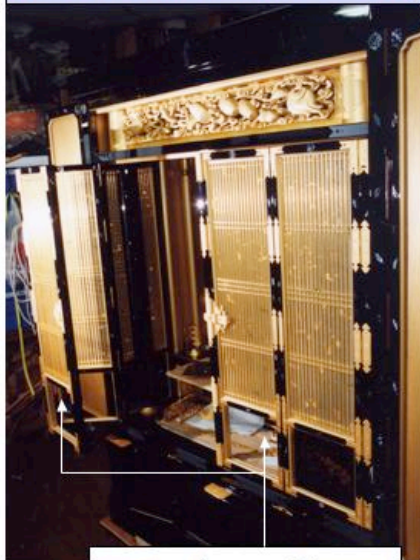


trimming *makie*
(made by *makieshi*)
before insertion into
the frame (made
by the *kijishi*)

ready for installation in spaces
on *shouji* (see *Kumi* photo 34)

Kumi photo 33: components of *shouji* doors

butsudan with *sama* carving and *shouji* installed



space for *makie*
see *Kumi* photo 33)



makie
installed
in frame with
attached
metalwork
(see *Kan* photo
15)

Kumi photo 34: making the inner lattice doors

FINAL STAGE: Assembly (*kumitate*) and conclusion

Finally the outer doors are hung by inserting pegs into holes in both the upper (*kamidaiwa*) and lower (*shimodaiwa*) parts of the *butsudan*. Small adjustments are made to ensure they fit properly. The gaps left between the doors are essential to allow easy opening and closing. And the metalwork must be in even rows.

CONCLUSION:

This then, finishes our website outlining some aspects of traditional Japanese craftsmanship. The technically trained craftsman (*dentou kougei shi*) undergoes years of rigorous training followed (these days) with a career that is far from financially secure. The features of the workmanship and the artisans' meticulous attention to detail mean that the products can be very expensive. Recently, with cheaper mass-produced imported items being offered to prospective buyers, the artisans are literally being priced out of the market. The result, of course, is that they are retiring early and not encouraging the next generation to pursue such careers. These traditional craft skills are slowly dying. Soon, there will be no one who is able to do, let alone describe, the work.

Many things Japanese, such as the kimono, tea ceremony, stone garden and flower arrangement are well known to people outside Japan. Countless foreigners take an interest in Japan and delve into the mysteries of its culture. However the *butsudan*, being an item strictly associated with Buddhism and ancestor worship as well as being somewhat ornate or even garish in appearance in comparison with the austerity of much Japanese art, is often passed by. However, the combination of the artisans' skills in cabinetry, wood and metal carving and lacquer work make *butsudan* an exemplar of many of the traditional Japanese crafts skills, and that is precisely why we chose to study it.

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